

The Echinoderms Newsletter

No. 9. September, 1977

Prepared in the Department of Invertebrate Zoology (Echinoderms),
National Museum of Natural History, Smithsonian Institution,
Washington D.C., 20560, U.S.A.

Plans for the Echinoderm Conference in Sydney are progressing well, and our host Frank Rowe expects an extremely good attendance with an excellent program of contributed papers, discussions, and social events. Please don't forget to submit to him abstracts of your papers!

We are again most grateful to Cynthia Gust for production of this Newsletter. She is responsible for this entire issue, and has done a magnificent job. Accordingly, it is with a deep sense of regret that we announce that Cynthia will be leaving us (our grant funds have now been expended) for the infinitely less exciting world of mollusks. So, following this issue, please expect the usual series of delays, mistakes, etc, that accompany production of the Newsletter by us alone!

David L. Pawson
Maureen E. Downey

¹The Echinoderms Newsletter is not intended to be part of the scientific literature, and should not be cited, abstracted, or reprinted as a published document.

Please complete this form and return to the editors. Please use the format employed in past Newsletters for lists of publications, etc.

Name: _____
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Address (if recently changed): _____

Current Research Project(s):

(last name) _____ :

Recent publications (within last year) and papers in press:
(please give authors' names, full title of paper, etc.)

Suggestions and requests:

(last name) _____ :

Other (comments, items of interest, etc.):

(last name) _____ :

Directory of Echinoderm Specialists
Address Changes

Branstrator, John W.- Earlham College, Richmond, Indiana 47374.

Bray, Richard D.- Dept. of Biology, Orange County Community College, Middletown, New York 10940.

Cousineau, Gilles H.- Montreal University, Biology Dept., Montreal, P.Q. H3C 3J7, Canada.

Cunningham, Carla Bundrick- 3083 Luna Ave., San Diego, California 92117.

Eastwood, Judith J.- 213 Hickory Ave., Tenafly, N.J. 07670.

Endelman, Losza- Palaeontological Institute, USSR Academy of Sciences, 33 Leninsky Prospect, Moscow 117071, USSR.

Green, Jeffrey D.- Dept. of Anatomical Sciences, 317 Farber Hall, State University of New York, Buffalo, N.Y. 14214.

Haugh, Bruce N.- Dept. of Fossil and Living Invertebrates, American Museum of Natural History, Central Park West at 79th St., New York, New York 10024.

Hawkins, Christopher M.- 772 Sherbrooke St. West, Marine Sciences Center, McGill University, Montreal, Quebec, H3A 1G1, Canada.

Kanatani, Haruo- Lab of Reproductive Biology, Inst. for Basic Biology, 38 Nishigonaka, Myodaijicho, Okazaki, Aichi-ken, 444, Japan.

Levitin, Paul- Dept. of Mar. Biol., James Cook Univ., Townsville, Qld.

Meyer, David L.- Univ. of Cincinnati, Dept. of Geology, Cincinnati, Ohio.

O'Connor, Clive- Markwell Fisheries, 17th Floor, 124 Walker St., North Sydney, NSW 2060 Australia.

Sastry, D.R.K.- Zool. Survey of India, 27 Jawaharlal Nehru Rd., Calcutta 700 016 India.

Tortonese, E.- Instituto Zooprofilattico, Lungo Bisagno Dalmazia 45A 16141 Genova, Italy.

Welch, James- MAPCO Inc., Suite 320 Plaza West, 1537 Ave. D., Billings, Montana 59102.

Items of Interest, etc.

Ailsa M. Clark has available for free distribution to seriously interested people copies of the following British Museum Publications:

1. John Murray Expedition: Asteroidea (Macan, 1938), Ophiuroidea (H.L. Clark, 1939), Crinoidea (A.H. Clark, 1937), Echinoidea 1 and 2 (Mortensen 1939, 1948).
2. Great Barrier Reef Expedition: Asteroidea (Livingston, 1932) 1 copy only; other Echinodermata (H.L. Clark, 1932) 1 copy only.
3. British Antarctic (Terra Nova) Expedition: Echinodermata (Bell, 1917).
4. There is one copy (for sale for one British pound) of H.L. Clark (1926) Catalogue of the recent sea urchins in the British Museum (Natural History),

Ailsa M. Clark writes as follows: The staff of the Zoological Society of London who work on the Zoological Record are compiling a comprehensive list of generic names, recent and fossil, valid and synonymized, matched with the appropriate class, mainly to help themselves get things in the right place. They have offered me a copy of the completed list for help in advising on some of the 'Problematica'. They may be prepared to supply copies to others but possibly only on a commercial basis. If anyone is interested, would they contact me or the managing recorder, Mr. Michael Dadd, Zoological Record, Ashley House, 44 High Street, Boston Spa, Wetherby, West Yorkshire LS23 6EA, England. The cost is likely to be a xeroxing charge of c. 5 pence a page plus a handling charge and postage. Subsequently if there is sufficient demand, they may produce separate lists for the individual classes or even lower categories.

Gerald Bakus has a large collection of identified benthic organisms from the northern Gulf of Alaska, and a small collection from St. George Basin, Bering Sea. If you should desire such specimens to enhance your collections, please write to Dr. Bakus. Also available are bottom photographs, sediment and oceanographic data, and excerpts from videotapes of the seafloor.

Position Wanted

S. Krishnan (Marine Biological Station, Zool. Survey of India, Santhome High Road, Madras 600028, India) would like to work on reproductive physiology/larval development of echinoderms (holothurians/echinoids) at the postdoctoral level in any part of the world. A temporary project is desirable. The applicant has 12 years of research experience in the above field.

Directory of Echinoderm Specialists
Supplement 2, August 1977

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Bedford, A.- University Marine Biological Station, Millport, Isle de Cumbrae, Scotland KA28 0EG.

Berry, A.J.- Dept. of Biology, University of Stirling, Stirling FK9, 4LA, Scotland.

Burgos, Medardo Urbina- Investigador-Biologo, Museo de Concepcion, Casilla 1054, Concepcion, Chile.

Caffi, Margarita G.- Casilla 1367, Instituto de Biologia, Concepcion, Chile.

Dean, Harlan- RD#2, Box 142-L, Angola by the Bay, Lewes, Delaware 19958

Frank, Peter- Museum of Natural Sciences, Nat'l Museums Canada, Ottawa K1A 0M8, Canada.

Frankel, Ed- Dept. of Geology, The University of Sydney, Sydney, N.S.W. 2006, Australia.

Gage, John D.- Scottish Marine Biological Association, Dunstaffnage Marine Research Laboratory, P.O. Box 3, Oban, Argyll, Scotland.

Gutierrez, Juan- Instituto de Investigaciones Oceanologicas, Universidad Chile sede Antofagasta, Casilla 1240, Chile.

Hulbert, Alan W.- Zoology Dept., Spaulding Bldg., University of New Hampshire, Durham, N.H. 03811.

McEdward, Larry- Dept. of Biology, Univ. of South Florida, Tampa, Fla.

Mathers, N.F.- Dept. of Brewing and Biological Sciences, Heriot-Watt University, Chambers St., Edinburgh EH1 1HX, Scotland.

Miller, John- Harbor Branch Foundation, Fort Pierce, Florida 33450.

Moore, G.P.- University Marine Biological Station, Millport, Isle de Cumbrae, Scotland KA28 0EG.

Murdoch, Joseph D.- 9702A 14th St., Tampa, Florida 33612.

Otsu, Ines- Instituto de Investigaciones Oceanologicas, Universidad de Chile sede Antofagasta, Casilla 1240, Chile.

Paterson, Gordon L.J.- Zoology Dept., British Museum (Nat. Hist.), Cromwell Rd., London SW7 5BD, England.

Pauls, Sheila Marques- Museo de Ciencias, Av. Ipiranga, 6681, CX Postal 1429, 90.000 Porto Allegre, Brasil.

Perez, Mercedes A.- Instituto de Oceanologia, Academia de Ciencias de Cuba, Ave Primera #18406, Marianao Habana, Cuba.

Philippe, Michel- Museum d'Histoire Naturelle, 28, Boulevard des Belges, 69006 Lyon (France).

Pires, Teresa Cristina Sauer de Avila- Av. Epitacio Pessoa, 786/Apto.301 Ipanema ZC-95, Rio de Janeiro, RJ, 20.000 Brasil.

Raja, P. Vivek- Dept. of Zoology, University of Madras, Madras 600 005 India.

Raymond, A.- Gatty Marine Laboratory, The University, St Andrews KY16 8Lb, Scotland.

Suriano, Elaine- 1225 Cedar Road, Ambler, Pennsylvania 19002.

Taki, Jyo- Hokkaido Kushiro Fisheries Experimental Station, Hama-cho, Kushiro, Hokkaido 085, Japan.

Tegner, Mia- Graduate Dept., A-008, Scripps Inst. of Oceanography, La Jolla, California 92093.

Viviani, Carlos A.- Director Lab. de Ecología Marina, Universidad del Norte, Casilla 65, Iquique, Chile.

Walenkamp, J.H.C.- Rijkmuseum van Natuurlijke Histoire, Postbus 9517, 2300 RA Leiden, Nederland.

Waters, Johnny A.- Dept. of Geology, West Georgia College, Carrollton, Georgia 30117.

Suggestions and Requests

Bakus - would appreciate information on mariculture of holothurians from active workers in the field.

Caffi - papers on the biology, especially methods for estimation of population structure, growing, density, etc. of holothurians larger than 200 gr. (w.w.) of littoral habitats. Seeking also information on the edibility of holothurians.

Cutress - information on location of collections of Cretaceous and Tertiary Cidaroida from the southern and eastern U.S. other than those in the USNM, ANSP, MCZ, PRI and Yale collections. Location of specimens not now in museum collections.

Ebert - would like to obtain data for tropical Indo-West Pacific echinoids on: 1) growth under field conditions; 2) size structure of populations; 3) general cycle using general index; 4) Physiological rates; 5) variation in settlement success.

Hawkins - would appreciate information on energetics; energy budgets of echinoderms in general.

Kardas - reprints needed on: spine morphology; spines and test fragments in Recent sediments; any cyclic phenomena related to echinoderms.

Keller, B.D. - would like information about the distribution of larvae of shallow-water Caribbean echinoids in the Atlantic Ocean.

Liddell - information on urchin (particularly Diadema antillarum) densities at various Caribbean localities.

Raja - papers related to oogenesis and biochemical studies on sea urchins.

Sprinkle - would like to know the location of museum or private collections of fossil echinoderms from the bromide formation of southern Oklahoma.

Strimple - information about creatures which might make a shallow bore hole in the skeleton of modern crinoids and lay their eggs in them. Presumably the crinoid would cover the opening with epidermis and so protect the eggs.

Town - would like information of any sort regarding the genus Astrostole, and will be pleased to provide specimens of most N.Z. echinoderms.

Tyler, P.A. - requests information on the distribution of Acrocnida and Ophiura in relation to salinity, sediments.

Wahlman - information on internat'l publications and museum collections, and collecting localities (in eastern North America) which contain Lower Silurian echinoderms.

Requests, con't.

Wilkie, I.C.- interested in breakage patterns at ophiuroid autotomy plane; requests anyone else interested to induce autotomy (by pinching with forceps) in arms of brittlestars, preserve in formalin or oven-dry both distal and proximal parts of arm about breakage plane, and send arm pieces with species identifications. Will reimburse mailing costs.

Theses and Dissertations

Addendum to the lists of Ph.D. Dissertations and Masters' Theses concerning echinoderms. Previous lists published in the Newsletter: no.3 (April 1971); no.4 (December 1972); no.6 (April 1975); no.7 (July 1976); no.8 (February 1977).

Ph.D. Dissertations:

Keller, B.D. 1976. Sea Urchin Abundance Patterns in Seagrass Meadows: The Effects of Predation and Competitive Interactions. Johns Hopkins Univ.

Tyler, P.A. 1976. The ecology and reproductive biology of the genus Ophiura with special reference to the Bristol Channel. Univ. of Wales.

Masters' Theses:

Carrera, C.J. 1974. The shallow-water amphiurid brittle stars (Ophiuroidea: Echinodermata) of Puerto Rico. Univ. of Puerto Rico at Mayaguez.

Cunningham, C.B. 1977. Aspects of the Reproductive Biology of Intertidal Amphiurids from Monterey Bay. San Jose State University.

Garcia-Talavera, F. 1970. Essays on the numerical taxonomy of the Eocene echinoids of Villafranqueza (Alicante). University of Madrid.

Green, J.D. 1976. Seasonal reproductive biology of Leptosynapta tenuis (Echinodermata: Holothuroidea). University of North Carolina at Chapel Hill.

Littrell, J.A. 1977. Field and Laboratory Studies of the Pedicellariae of Lytechinus variegatus (Lamarck, 1816). (Echinodermata: Echinoidea). University of Puerto Rico at Mayaguez.

Wilkie, I.C. 1976. A study of the process of ophiuroid arm autotomy (includes investigation of connective tissue organization and mechanical properties). University of Glasgow.

Witzke, B.J. 1976. Echinoderms of the Hopkinton Dolomite (Lower Silurian), eastern Iowa. University of Iowa.

Current Research Projects

Abbott- Studies of diet and behaviour of West Indian echinoids (Diadema, Echinometra, Tripneustes).

Albuquerque- On a collection of Antarctic Amphiuridae.

Bakus- Benthic biota in the Gulf of Alaska and the Bering Sea.

Bell- Functional morphology, phylogeny, ontogeny and systematics of edrioasteroids. Restudy of cyathocystid and pyrgocystid edrioasteroids. Descriptions of several new species and two new large populations of isorophid edrioasteroids.

Bernasconi and d'Agostino- Antarctic Echinoderms. Ophiuroids of the South Sandwich Islands and complementary notes on those of South Georgia Islands.

Birkeland and Mesmer- Field experiments on the role of historical chance in the distribution of populations of Dendraster excentricus.

Bissell- Feeding activities in Astropecten duplicatus.

Branstrator- Asteroids of Bromide formations: Ordovician Asteroids of Western U.S.; Paleobiology and taxonomy of Cincinnati Asteroids; Skeletal functional morphology in modern asteroids.

Bray- Community structure of shallow-water Ophiuroidea of Bardos, H.I.; also, the crinoids and ophiuroids of San Salvador, Bahamas.

Breimer- Revision of coronate blastoids. Speciation in Pentremites, a Mississippian blastoid from N.Am. Phylogeny of spiraculate blastoids.

Brower- Evolution of the Melocrinidae and Calceocrinidae. Calceocrinids on the Bromide Limestone (Ordovician), Middle Ordovician crinoids from the Twin Cities in Minnesota.

Caffi- Biological observations in Athyridium chilensis (Semper, 1863), (Holothuroidea, Phyllophoridae).

Campbell, A.C.- Analysis of Basi-epithelial nervous system of echinoids with reference to spine and pedicellariae control; sphaeridia; structure of echinothurids.

Caso- Pacific Echinoids of Mexico; orders Cidaroidea and Aulodonta.

Clark, A.M.- Monograph of Atlantic Asteroidea (with Downey and Sibuet).

Codoceo- Holothuroidea of Pascua Island.

Cunningham, C.B.- Distribution of viviparous amphiurids along the California coast; relationship between Amphiodia occidentalis and Amphiodia sp. that broods.

Cutress- Cretaceous and Tertiary Cedaroids of the Caribbean area; Cretaceous and Tertiary Cedaroids of the southern and Eastern United States.

Donnay and Iijima- Study of echinoderm shells with the high-resolution electron microscope.

Durham- Pliocene and Pleistocene echinoids of northwestern California and Western Oregon.

Ebert- Examination of growth and death rates in echinoids based on field work in Hawaii, Australia, Sri Lanka, Seychelles, Kenya, Zanzibar, and Israel; relationship between mortality and resource allocation. Population ecology of Holothuria atra at Eniwetok Atoll.

Endelman- Echinoids of order Holoctypoida; their morphology, evolution, systematics; their distribution in Upper Cretaceous and Paleogene of USSR. Distribution of regular echinoids in Cretaceous and Paleogene of USSR.

Foster- Australian and New Zealand Tertiary holasteroid echinoids.

Franzen- Silurian Crinoidea Camerata, Pisocrinidae from Gotland, Sweden. Echinoidea (Aptilechinus and Neobothriocidaris) from the Silurian of Gotland.

Frest- New Cincinnati crinacea and Homocrinacea from Ordovician rocks of Oklahoma and Virginia (with Strimple and McGinnis); Pygmaeocrinidae (Silurian: Devonian): Functional morphology and a revision of the family (with Strimple): the genus Thalamocrinus in North America (with Strimple): Functional morphology of Hybocriinus (with Strimple and Coney): Revision of American Stephanocrinoids.

Gutierrez and Otsu- Revision of the specific characters of Loxechinus albus (edible urchin) obtained from Arica, Antofagasta, Valparaiso and Chile.

Haugh- Paleozoic crinoid paleobiology and paleoecology; Echinoderm symmetry and biological organization, microstructure. Late Ordovician (Richmond) channel-dwelling crinoids from southern Ontario.

Hawkins- Ecological energetics of Diadema antillarum on a fringing coral reef in Barbados, West Indies.

Horowitz- Late Mississippian blastoids.

Hulbert- The role of Asterias vulgaris in three subtidal communities.

James, D.B.- Studies on shallow-water echinoderms of Andaman and Nicobar Islands.

Kardas- Actuopaleontology of echinoderm hard-parts. Spine morphology, Cyclic phenomena in echinoderms.

Katz- Respiration in blastoids.

Keller, R.- Experimental studies of Central California benthos; echinoids of Jamaican seagrass meadows.

Kelly, S.M.- Additional notes on Simplococrinus from Kentucky (with Frest and Strimple).

Kier- Study of the systematics, ecology, and evolution of the Tertiary echinoids of S.E. United States.

Kobayashi- Marine pollution bioassay by sea urchin eggs.

Komatsu- Reproduction and development of sea-stars.

Lamberson- Reference collection of Eniwetok flora and fauna; occurrence of Thelenota anax in the Marshall Islands; holothurians of Eniwetok.

Liddell- Habitats and food of shallow-water Caribbean crinoids; the effects of grazing by sea urchins upon fore-reef coral/algae community structure at Jamaica (with Ohlhorst).

Mackie- The natural history and ecology of Helaster kubiniji (the multi-rayed sunstar of the Gulf of California); data collection on a shape-ecology study of North American Asteroids.

Magnus, D.- Associates of Echinoderms (especially in tropical seas).

Martinsson- Pedicellariae of Early Palaeozoic Asterozoa (with I.G. Sohn).

Niesen- Population biology and zoogeography of introduced invertebrate species in San Francisco Bay.

O'Connor, C.P.- The ecology of prawn fishing sea urchin culture.

Pabian- Paleoecology and biostratigraphy of Missourian crinoids of southeastern Kansas (with Strimple).

Perez, M.- Cuba Ophiuroidea.

Philippe, M.- Revision of the Miocene Echinoids of the Rhone Basin (France); systematics and paleoecology.

Prokop- Silurian and Devonian crinoids of Bohemia.

Rivera, J.- Population dynamics of Lytechinus variegatus in Jobos Bay, Puerto Rico.

Rowe, F.W.E.- Systematics of Echinoderms. Revision of Australian Echinoderms. Tasmanian Echinoderms. Holothurians of South Australia (NSW-WA). Shallow-water Indo-Pacific asteroids (Nardoa, Nepanthia).

Scally- The wear dynamics and functional anatomy of dentate marine animals, especially echinoids.

Serafy- Echinoderm animal-sediment relationships. Biology of Echinorachnius parma on mid-Atlantic shelf. Early growth stages of several ophiuroid on mid-Atlantic shelf.

Sevastopulo- Growth of Allocatilloocrinus (Crinoidea) (with Strimple); Irish Carboniferous crinoid faunas.

Shick and Dearborn- Nutritional and reproductive adaptations of the burrowing asteroid Ctenodiscus crispatus. Anatomical, behavioural, and physiological adaptations to infaunality in Ctenodiscus.

Sibuet- Abyssal ecology and Biogeography systematics of Asteroids and Holothurians. Monograph of the Atlantic Asteroids (with Downey and Clark).

Sprinkle- Middle Ordovician Echinoderms from the Bromide Formation of Oklahoma; Cambrian Eocrinoids, Edrioasteroids, and Stylophorans from the Midwest and Rocky Mountains; Morrowan Pentrmites from Oklahoma and Arkansas.

Strimple- The crinoid genus Cleiocrinus (with Kolata); the disparid genus Allocatilloocrinus (with Sevastopulo); crinoids of the Stull Shale (Virginian) (with Pabian); Benbolt (Ordovician) echinoderms from vicinity of Rye Cove, Virginia (with Frest and Coney); Missourian crinoids of Iowa (with Pabian); Chesterian crinoids of Illinois, Alabama and Arkansas; Graford (Missourian) crinoids from Wise County, Texas; blastoids from the Lower Pennsylvanian Wapanucka Fromation (with Katz); new edrioasteroids from the Upper Chesterian of southern Illinois (with Bell).

Tahara, Y.- Formation of the secondary sexual characters in sea urchins (with M. Okada).

Tegner, M.- Natural history and population biology of the two Californian strongylocentrotids, especially as pertains to the management of the urchin fishery.

Tortonese- Echinoderms of the Red Sea and West Indian Ocean; and the genus Echinaster (Asteroidea).

Town- Biology of the N.Z. seastar Astrostole scabra, especially the dynamics of the prey-predator system, reproductive periodicity, and growth and movement.

Tyler, P.A.- Reproductive biology of Acrocnida brachiata.

Urbina- Antarctic holothurians deposited in the Dept. of Marine Biology, I.C.B. "Ottmar Wilhelm Grob". Universidad de Concepcion.

Vivek Raja- Cytological and biochemical studies on the oogenesis of Salmacis virgulata with special reference to the mode of yolk formation.

Viviani, C.A.- Litoral communities of the 'Norte Grande de Chile'.

Wahlman- Lower Silurian echinoderm faunas of the eastern North America, with emphasis on the fauna of the Brassfield Limestone of the Ohio-Indiana-Kentucky region. The paleoecology of Lepadocystis moorei in the Upper Ordovician of Ohio and Indiana. Taxonomy and functional morphology of the cystoid Brockocystis. An Upper Cambrian xiphosuran from Texas and its phylogenetic significance (with K.E. Caster).

Waters- Mississippian blastoid Pentremites; and Mississippian echinoderms from Alabama and Georgia.

Weber, W.- Physiology and ultrastructure of light-sensitive pigment cells in Centrostephanus longispinus. Ultrastructure of the nervous system in Centrostephanus longispinus.

Welch- Flume studies of Paleozoic crinoids. Pennsylvanian crinoids associated with algal banks in the Illinois Basin.

Wilkie, I.C.- Ophiuroid autotomy; echinoderm connective tissue physiology.

Yamaguchi, M.- Life history of the Parthenogenetic asteroid Ophidiaster granifer Lutken.

Recent Publications and Papers in Press

This list is based upon Newsletter replies plus reprints received. Please note that many of the papers listed below as "in press" will already have been published.

Amesbury, S.A., C.E. Birkeland et al., 1976. Limited Current and Underwater Biological Survey of the Donitsch Island Sewer Outfall Site, Yap, Western Caroline Islands. Univ. of Guam Mar. Lab., Technical Report No. 24, 49pp and plates.

Arendt, Y.A., 1976. Ordovician Echinodermata Hemistreptocrinidae. Bull. Moscow Soc. Exper. Natural Science. Geology Section 51(2): 63-83.

Arnaud, P.M., 1972. Mission 1969 du Bathyscaphe Archimede aux acores Observations Faites au cours des Plonges 3 et 4. Centre National pour l'Exploitation des Series; Resultats des Campagnes a la Mer. No. 3: 53-57.

Arshavsky, Yu I., Kashin, S.M., Litvinova, N.M., Orlovsky, G.N., Feldman, A.G., 1976. Diurnal changes in the activity of a brittle star Amphipholis kochii Lutken (Ophiuroidea, Amphiuridae). Zool. Journal 55(2): 1737-1740.

Same authors as above. 1976. Some behavioural patterns in Amphipholis kochii (Ophiuroidea: Amphiuridae). Zool. Journal 55(12): 1851-62.

Same authors as above. 1976. Coordination of movements of the tube feet and arms during locomotion of ophiura. Neurophysiology 8(6): 633-639.

Same authors as above. 1976. Coordination of movements of the arms during locomotion of ophiura. Neurophysiology 8(5): 529-537.

Bell, B.M., and R.W. Frey, 1969. Observations on Ecology and the Feeding and Burrowing Mechanisms of Mellita quinquesperforata (Leske). J. Palaeont. 42(2): 553-560.

_____, 1973. Respiratory Schemes in the Class Edrioasteroidea. G.S.A. Abstracts 5(?): 544-545.

_____, 1974. Phylogenetic Implications of Ontogenetic Development in the Class Edrioasteroidea. G.S.A. Abstracts 6(7): 649-650.

_____, 1975. Ontogeny and Systematics of Timeischutes casteri sp. nov. An Enigmatic Devonian Edrioasteroid. Bulletins of American Paleontology 67(287): 33-56, 28 text-figs, 5 pls.

_____, 1976. A Study of North American Edrioasteroids. New York State Museum Memoir 21, 447pp., 65 text-figs., 63 plates.

_____, 1976. An Edrioasteroid from the Guilmette Formation at Wendover, Utah-Nevada. J. Paleont. 50(4): 577-589.

Bell, B.M., H.L. Strimple, And C.O. Levorson, 1976. Edrioasteroids (Echinodermata) of the Maquoketa Formation of Iowa. Iowa Acad. Sci. 83(1): 23-27.

_____, 1976. Phylogenetic Implications of Ontogenetic Development in the Class Edrioasteroidea. J. Paleont. 50(6): 1001-1019.

_____, 1977. Respiratory Schemes in the Class Edrioasteroidea. J. Paleont. 51: 619-632.

_____, in press. Ordovician Edrioasteroidea of Kentucky. in Ordovician Paleontology of Kentucky, U.S.G.S. Professional Paper, 16 manuscript pages, 6 text-figs., 2 plates.

_____, and J. Sprinkle, in press. Totiglobus, an unusual new edrioasteroid from the Middle Cambrian of Nevada. J. Paleont. 42 typescript pages, 4 text-figs., 6 plates.

Belyaev, G.M., A.N. Mironov, in press. Holothurians of the genus Myriotrochus from the southern part of the Atlantic Ocean. Transect. Inst. Oceanol.

_____, and N.M. Litvinova, 1976. The new and Rare Ophiuroid species from the Pacific and Indian Oceans. Transact. Inst. Oceanol. vol. 99: 126-139.

_____, 1975. New Species of Holothurians of the Genus Elpidia from the South part of the Atlantic Ocean, Transact. Inst. Oceanol. vol. 103: 259-280.

_____, and N.M. Litvinova, in press. The Second Finding of the Deep-sea starfishes family Caymanostellidae. Zool. Journal, vol.56: No. II.

_____, and A.N. Mironov, in press. Holothurians of the genus Myriotrochus from the deep-sea trenches of the Pacific Oceans. Transact. Inst. Oceanol., vol. 108.

_____, and A.N. Mironov, in press. Bottom Fauna of the West Pacific deep-sea trenches. Transact. Inst. Oceanol., vol. 108.

Bengston, S., 1977. Aspects of Problematic Fossils in the Early Paleozoic Acta Universitatis Upsaliensis 415: 71 pp.

Bernasconi, I., Hallazgo en el oceans Antarctic de Eremicaster gracilis (Sladen, 1883) (Asteroidea: Porcellanasteridae).

Birkeland, C., et al., 1976. Limited Current and Underwater Biological Surveys of a Proposed Sewer Outfall Site on Malakal Island, Palau. Univ. of Guam Mar. Lab., Tech. Report No. 25, 59pp.

Branstrator, J.W., in press. Ordovician Asteroidea (Echinodermata) from Kentucky. U.S.G.S. Professional Paper, The Ordovician Paleontology of Kentucky and nearby states.

Brehm, P. and J.C. Morin, 1977. Localization and Characterization of Luminescent Cells in Ophioipsila californica and Amphipholis squamata (Echinodermata: Ophiuroidea). Biol. Bull. 152: 12-25.

Brower, J.C., 1976. Promelocrinus from the Wenlock at Dudley. Paleontology, vol. 19: 651-679.

_____, in press. Growth of camerata crinoids, a summary, Treatise on Invertebrate Paleontology, Pt. 1, Echinodermata 2 (Crinoidea), R.C. Moore (ed.), Geological Society of America and University of Kansas Press.

_____, in press. Evolution of the Melocrinidae. Proc. Vol. for Second Conference of Echinoderms, Thalassia Jugoslavica.

_____, in press. Calceocrinids from the Bromide Formation (Ordovician) of Oklahoma. Circular, Oklahoma Geological Survey.

_____, C.R. Clement, J. Veinus, in press. Multivariate allometry using Morphometric measurements. Recent advances in numerical geobiology, D.F. Merriam, ed.

Caso, M.E., in press. Contribucion al estudio de los Asterozoa de Mexico, la familia Mithrodiidae. Descripcion de una nueva especie del genero Mithrodia, Mithrodia enriquecasoi sp. nov.

_____, in press. Especies de la familia Asterinidae en la costa pacifica. Descripcion de una nueva especie del genero Asterina, Asterina agustincasio sp. nov.

Clark, A.M., 1977. Notes on deep-water Atlantic Crinoidea. Bull. Br. Mus. nat. Hist. (Zool.) 31: 157-186.

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LATE NEWS FLASH.....Michel Jangoux, Universite Libre de Bruxelles, Faculte des Sciences, Avenue F.D. Roosevelt, 50, would like to borrow specimens of the starfish genus Fromia for a revision he is doing with Loisette Marsh.

HELP!! - ADDRESSES UNKNOWN

If you happen to know the addresses of any of the following people,
please let us know. Thank you.

James Campbell	Nancy M. Marcus
Finn Edvardsen	Richard Merrill
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